

structures and use existing protocols. In addition, the apparatus, method and system of the present invention are user friendly and user transparent.

5 From the foregoing, it will be observed that numerous variations and modifications may be effected without departing from the spirit and scope of the novel concept of the invention. It is to be understood that no limitation with respect to the specific methods and apparatus illustrated herein is intended or should be inferred. It is, of course, intended to cover by the appended claims all such modifications as fall within the scope of the claims.

10 **We claim:**

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1. A method for providing a default mode for authentication failures in a mobile telecommunication network, the network having been accessed by a mobile unit through a call leg, the method comprising:

- (a) performing an authentication procedure;
- (b) when the authentication procedure has resulted in an authentication failure, denying the mobile unit access to the network and terminating a communication session with the mobile unit; and
- (c) providing an announcement on the call leg to the mobile unit.

2. The method of claim 1, further comprising:
routing the call leg to a customer service center.

3. The method of claim 2, further comprising:
reprogramming the mobile unit with correct data for the authentication procedure.

4. The method of claim 1, wherein step (a) further comprises:
transmitting a message requesting the authentication procedure; and
receiving a response message containing authentication information.

5. The method of claim 4, wherein the authentication information is a random number.

6. The method of claim 1, wherein step (a) further comprises:
calculating a first shared secret data by the mobile unit;
calculating a second shared secret data by a switching center; and
comparing the first shared secret data and the second shared secret data to determine the authentication failure.

7. The method of claim 1, wherein step (b) further comprises:
transmitting an authentication status report return result, the authentication
status report return result including a deny access parameter and an announcement list
parameter.

8. The method of claim 1, wherein step (b) further comprises:
tearing down a second call leg from a network switch to a third party.

9. The method of claim 1, wherein step (a) further comprises:
transmitting an authorization directive message directing the
authentication procedure, the authorization directive message containing authentication
information.

10. An apparatus for providing a default mode for authentication failures in a
mobile telecommunication network, the network having been accessed by a mobile unit
through a call leg, the apparatus comprising:

a network interface for transmitting and receiving a plurality of call legs;

a memory; and

a processor coupled to the network interface and to the memory, wherein

the processor, when operative, is configured to perform an authentication procedure; the
processor further configured, when the authentication procedure has resulted in an
authentication failure, to denying the mobile unit access to the network, to terminate a
communication session with the mobile unit; and to provide for an announcement on the
call leg to the mobile unit.

11. The apparatus of claim 10, wherein the processor is further configured to
route the call leg to a customer service center.

12. The apparatus of claim 10, wherein the processor is further configured to, via the network interface, transmit a message requesting the authentication procedure, and receive a response message containing authentication information.

a 5 13. The apparatus of claim 12, wherein the authentication information is a random number.

10 14. The apparatus of claim 10, wherein the processor is further configured to receive, via the network interface, a first shared secret data calculated by the mobile unit; and wherein the processor is further configured to calculate a second shared secret data and to compare the first shared secret data and the second shared secret data to determine the authentication failure.

002159.061200 15 15. The apparatus of claim 10, wherein the processor is further configured to receive, through the network interface, an authentication status report return result, the authentication status report return result including a deny access parameter and an announcement list parameter.

20 16. The apparatus of claim 10, wherein the processor is further configured to tear down a second call leg to a third party.

25 17. The apparatus of claim 10, wherein the processor is further configured to receive, through the network interface, an authorization directive message directing the authentication procedure, the authorization directive message containing authentication information.

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18. A system for providing a default mode for authentication failures in a mobile telecommunication network, the network having been accessed by a mobile unit through a call leg, the system comprising:

an authentication center; and

an originating mobile switching center couplable to the authentication center, wherein the originating mobile switching center, when operative, is configured to perform an authentication procedure; the originating mobile switching center further configured, when the authentication procedure has resulted in an authentication failure, to receive a message from the authentication center to deny the mobile unit access to the network, to terminate a communication session with the mobile unit, and to provide for an announcement on the call leg to the mobile unit.

19. The system of claim 18, further comprising:

an adjunct network entity couplable to the originating switching center,

the adjunct network entity having an announcement application node; and

wherein the originating mobile switching center is further configured to route the call leg to the announcement application node.

20. The system of claim 18, wherein the originating mobile switching center is further configured to route the call leg to a customer service center.

21. The system of claim 18, wherein the originating mobile switching center is further configured to transmit to the authentication center a message requesting the authentication procedure, and receive from the authentication center a response message containing authentication information.

22. The system of claim 21, wherein the authentication information is a random number.

a 23. The system of claim 18, wherein the originating mobile switching center is further configured to receive a first shared secret data calculated by the mobile unit; and wherein the originating mobile switching center is further configured to calculate a second shared secret data and to compare the first shared secret data and the second shared secret data to determine the authentication failure.

24. The system of claim 18, wherein the originating mobile switching center is further configured to receive, from the authentication center, an authentication status report return result, the authentication status report return result including a deny access parameter and an announcement list parameter.

25. The system of claim 18, wherein the originating mobile switching center is further configured to tear down a second call leg to a third party.

26. The system of claim 18, wherein the originating mobile switching center is further configured to receive, from the authentication center, an authorization directive message directing the authentication procedure, the authorization directive message containing authentication information.

27. The system of claim 18, wherein the authentication center is co-located with a home location register.

28. A system for providing a default mode for authentication failures in a mobile telecommunication network, the network having been accessed by a mobile unit through a call leg, the system comprising:

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5 an adjunct network entity, the adjunct network entity having an announcement application node;

a home location register having an authentication center; and

an originating mobile switching center couplable to the authentication center, wherein the originating mobile switching center, when operative, is configured to perform an authentication procedure by calculating a first shared secret data result and
10 comparing the first shared secret data result with a second shared secret data result received from the mobile unit; the originating mobile switching center further configured to determine an authentication failure when the first shared secret data result is not identical to the second shared secret data result; the originating mobile switching center further configured, when the authentication procedure has resulted in the authentication
15 failure, to transmit an authentication status report message to the authentication center indicating the authentication failure, and to receive an authentication status report return result message from the authentication center, the authentication status report return result message including a deny access parameter and an announcement list parameter; the originating mobile switching center further configured to deny the mobile unit access
20 to the network and to terminate a communication session with the mobile unit by tearing down a second call leg to a third party; and wherein the originating mobile switching center is further configured to route the call leg to the announcement application node to provide for an announcement on the call leg to the mobile unit, and subsequent to the provision of the announcement, to route the call leg to a customer service center.

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29. A system for providing a default mode for authentication failures in a mobile communication network, the network having been accessed by a mobile unit through a call leg, the system comprising:

means for performing an authentication procedure;

means, when the authentication procedure has resulted in an authentication failure, for denying the mobile unit access to the network and terminating a communication session with the mobile unit;

means for providing an announcement on the call leg to the mobile unit;

and

means for routing the call leg to a customer service center.

30. The system of claim 29, further comprising:

means for transmitting a message requesting the authentication procedure;

and

means for transmitting a response message containing authentication information.

31. The system of claim 29, further comprising:

means for transmitting an authentication status report return result, the authentication status report return result including a deny access parameter and an announcement list parameter.

32. The system of claim 29, further comprising:

means for tearing down a second call leg from a network switch to a third party.

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33. The system of claim 29, further comprising:
means for transmitting an authorization directive message directing the authentication procedure, the authorization directive message containing authentication information.

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